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The Essex Naturalist:

BEING THE

JOURNAL

OF THE

ESSEX FIELD CLUB,

EDITED BY

WILLIAM COLE, F.L.S., F.E.S.,

Honorary Secretary and Curator.

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[Illustrated—Second instalment (6) of the 25 Plates by Mr. C. Sillem, for the illustration of the Monograph on the British Woodlice.]

The Authors alone are responsible for the statements and opinions contained in their respective papers.

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THE ESSEX FIELD CLUB.

Membership of the Club.—Information respecting Membership and the work of the Club, with forms of proposal, will be sent on application to the Hon. Secretaries, at the Head-quarters.

The Essex Museum of Natural History (*Romford Road, Stratford, Essex*) is designed and arranged as a Local Museum for the County, and as an Educational Museum for use of the general public, students and schools. Included in the scheme is a Lecture-room for Demonstrations and the aid of a growing Library of some of the most useful monographs of British Geology, Botany, and Zoology, *for the use of Students in the Museum.* *Curator*, W. COLE. *Assistant*, HENRY WHITEHEAD.

The Epping Forest Museum, established by permission of the Corporation of London in Queen Elizabeth's Hunting Lodge, Chingford, Essex, is devoted to the elucidation of the Natural History and Antiquities of Epping Forest, and as a centre for Nature-study for schools and young naturalists. *Honorary Curators*, W. COLE, B. G. COLE, and H. A. COLE.

The Libraries of the Club include works on Natural History, Geology, and Antiquities, with a special department of books, pamphlets, and MSS. relating to Epping Forest. *Honorary Librarian*, THOMAS W. READER, F.G.S.

The Photographic and Pictorial Survey of Essex has been founded for the preservation of photographs, pictures and maps, etc., illustrative of the topography, antiquities, social habits, natural history, etc., of the County. Complete sets of the 1-inch and the 6-inch Ordnance Surveys and the Geological Survey of Essex, have been obtained to aid in this work. The collections will be stored in the Essex Museum, and will be available for reference on application to the Curator. *Hon. Secretary*, VICTOR TAYLOR, Hurstleigh, Buckhurst Hill, Essex.

THE BEETLES OF THE EASTERN COUNTIES.[1]

By CLAUDE MORLEY, F.E.S., &c.

WHEN I last year(1904)wrote my comparative account of the the Coleopterous fauna of Suffolk and Norfolk I had had no opportunity of studying the very excellent catalogue of the Essex beetles published in the *Victoria History* of that county. This I have recently done with some care, and the results, as connected and interwoven with those of a similar study of the neighbouring counties, may be of interest to Essex Coleopterists, and will indicate the directions in which they may most advantageously strike out with a view to augmenting their list.

Rich as are both Suffolk and Norfolk in coast sands and salt marshes, those of Essex are of yet greater extent, and of a conformation to shelter a broader fauna; in the way of woods and forests Norfolk is the worst off, and the small patches of ancient timber at Staverton and Fakenham in Suffolk cannot be compared with the large tract of land still covered by Epping Forest. As regards the light lands, however, I do not think Essex so well equipped as her northern sisters; certainly she can boast no *inland* dunes and sandhills such as those of the Breck District.

My personal acquaintance with the beetles of Essex is so slight that it will hardly be wearisome to notice it here. In September, 1893, *Silpha atrata* was very common at Maldon; in January, 1896, *Homalium iopterum*, *Rhagium inquisitor* and *Scolytus intricatus** were found at Chingford Hatch. At Harwich early in June, 1897, *Bembidium ephippium*, *Dyschirius salinus*,* *Cercyon aquaticus*,* *Philonthus ventralis*, *Heterocerus obsoletus* and *Codiosoma spadix* turned up; and at Wood Street, Epping, in May, 1902, were *Anchomenus gracilis*, *Bembidium lunulatum* Fourc.,* *Hydrous caraboides* and *Balaninus villosus*, with *B. tessellatus*, at Halstead. In July of the same year, and again in April of the following, I had several delightful days' collecting with my dear friend Mr. Alfred Beaumont, who had the honour (with the exception of Lord Avebury and two others) of being the oldest Fellow, among 500, of the Entomological Society; and of whose death I have to-day regretfully heard. We met with several nice beetles at Gosfield, near Halstead, the best being *Bolitochara lucida*,* *Liodes*

1 Written 1st March, 1905.
2 *Trans. Norf. Nat. Soc.*, 1904, pp. 706-721.

orbicularis, *Rhizophagus perforatus*, *Tryphillus suturalis*, *Dyphyllus lunatus*,* *Agrilus laticornis*,* *Cis hispidus*, *Strophosomus retusus*, *Hypera plantaginis*, *Onthophilus striatus*,* *Mycaeta hirta*, *Monotoma quadricollis*,* and *Stilicus fragilis*.* I am surprised, in comparing these meagre records with the *Victoria History* list, to find among them no less than ten additions to the county list; these are marked with an asterisk.

Since my enumeration of our Coleoptera last year, thirty-three species have been added to the "Coleoptera of Suffolk,"[3] and Mr. James Edwards, F.E.S., has added seven species in the *Transactions of the Norfolk Naturalists' Society*, 1904, pp. 744-5, to the 1,796 species which he had previously noticed from Norfolk.[4] A comparison of the Essex list with these is most instructive—all the following one hundred and seventy-four species are hitherto quite unknown to occur in either of the more northern counties. I have taken the opportunity of appending a comparative table, illustrating the distribution of the various groups in the Eastern Counties. The only species I have excluded from the Essex list is *Brachinus sclopeta*, a very doubtful insect as British, which should be placed in the same category as *Chrysomela gloriosa* in Suffolk and *Cardiophorus ruficollis* in Norfolk; nor have I included my own records, mentioned above, in so unofficial a review as the present.

BEETLES PECULIAR TO ESSEX.

GEODEPHAGA

Dyschirius extensus
Stenolophus elegans
Acupalpus consputus
Anisodactylus pœciloides
Ptevostichus inæqualis
Anchomenus atratus
,, *junceus*
Bembidium paludosum
Trechus lapidosus

HYDRADEPHAGA

Hydroporus celatus
Hydroporus rivalis
Agabus biguttatus

PALPICORNIA

Paracymus nigro-æneus
Spercheus emarginatus
Ochthebius æneus
Hydraena nigrita

BRACHELYTRA

Microglossa gentilis
Oxypoda exoleta
,, *lentula*

3 *The Coleoptera of Suffolk*, by Claude Morley, F.E.S., &c. Plymouth, J. H. Keys, Printer, Whimple Street, 3s. 6d.

4 *Fauna and Flora of Norfolk*, part xii.: *Coleoptera*. By James Edwards, F.E.S. (*Trans. Norf. Soc.*, 1893, p. 427-508); "Additions," *lib. cit.* 1899, pp. 515-527.

Oxypoda recondita
" *spectabilis*
" *vittata*
" *waterhousei*
Stichoglossa semirufa
Thiasophila inquilina
Ischnoglossa corticina
Ocalea badia
Calodera riparia
Nototheca confusa
Homalota ægra
" *autumnalis*
" *cadaverina*
" *canescens*
" *cinnamoptera*
" *corvina*
" *decipiens*
" *gemina*
" *indubia*
" *pilicornis*
" *silvicola*
" *sordidula*
" *xanthopus*
Gyrophaena lucidula
" *strictula*
Euryusa laticollis
Oligota flavicornis
" *pusillima*
Conosoma pedicularis
Tachinus elongatus
Quedius umbrinus
Philonthus addendus
" *fuscus*
" *punctus*
" *splendidulus*
" *thermarum*
Cafius sericeus
Lathrobium punctatum
Medon fuscula
" *obsoleta*
Sunius filiformis
Dianous cærulescens
Stenus canescens
" *fuscicornis*
" *picipennis*
Oxytelus maritimus
Acrognathus mandibularis
Deleaster dichrous
Acidota cruentata
Micralymma brevipenne

CLAVICORNIA.

Bryaxis waterhousei
Euplectus piceus
Scydmænus godarti
" *poweri*
Eutheia plicata
Agathidium convexum
Anisotoma curvipes
" *oblonga*
Hydnobius strigosus
Colon serripes
Hister quadrimaculatus
Abraeus granulum
Trichopteryx ambigua
" *brevicornis*
Actidium coarctatum
Hyperaspis reppensis
Scymnus minimus
Phalacrus brisouti
Amphotis marginata
Thalycra sericea
Ips quadriguttata
Ditoma crenata
Cicones variegatus
Laemophloeus bimaculatus
" *pusillus*
Silvanus unidentatus
Monotoma formicetorum
" *quadrifoveolata*

Monotoma spinicollis
Lathridius carinatus
Corticaria transversalis
Cryptophagus bicolor
Cænoscelis ferruginea
Atomaria atra
,, *fimetarii*
,, *versicolor*
Megatoma undata
Heterocerus sericans, Kies.

LAMELLICORNIA

Onthophagus nutans
Aphodius conspurcatus
,, *lividus*
,, *tessulatus*
,, *zenkeri*
Heptaulacus testudinarius

STERNOXI

Throscus carinifrons
,, *obtusus*
Elater miniatus
,, *præusta*
,, *sanguinolentus*
Agriotes sordidus
Corymbites pectinicornis

MALACODERMA

Podabrus alpinus
Axinotarsus pulicarius
Dolichosoma lineare
Haplocnemus nigricornis
Opilo mollis

TEREDILIA

Dorcatoma flavicornis
Anitys rubens
Cis alni
,, *micans*
Enneartbron affine

LONGICORNIA

Callidium sanguineum
Obrium cantharinum
Molorchus minor
Leptura scutellata
Strangalia attenuata
,, *revestita*

PHYTOPHAGA

Orsodacna cerasi
,, *lineola*
Bruchus luteicornis
Clythra quadripunctata
Chrysomela marginata
Thyamis absinthii
Hermeophaga mercurialis
Plectroscelis aridula

HETEROMERA

Alphitophagus 4-pustulatus
Tribolium confusum
Clinocara tetratoma
Abdera quadrifasciata
Palorus depressus
Lissodema quadripustulata
Pyrochroa coccinea
Mordellistena brevicauda
Anthicus angustatus
Meloe cicatricosus
,, *rugosus*

RHYNCHOPHORA

Apion lævicolle
,, *livescerum*
,, *schonherri*
Trachyphloeus alternans
Omias mollinus
Sitones cambricus
Liosoma oblongulum
Erirhinus scirpi
Bagous argillaceus

Bagous cylindrus
,, *subcarinatus*
Sibinia arenariæ
Mecinus collaris
Coeliodes exiguus
Ceuthorhynchus verrucatus
Hylastes angustatus
Tomicus nigritus
Xyleborus saxeseni
Brachytarsus varius

Taking the time-honoured groups individually, the following table will show at a glance the relative distribution of species, as far as is at present ascertained, throughout the Eastern Counties.

GROUP.	ESSEX.	NORFOLK.	SUFFOLK.	BRITAIN.
Geodephaga	173	196	191	310
Hydradephaga	60	95	82	130
Palpicornia	64	74	74	95
Brachelytra	385	371	429	778
Clavicornia	302	337	331	682
Lamellicornia	46	56	58	90
Sternoxi	33	36	35	76
Malacoderma	50	58	57	91
Teredilia...	28	24	32	57
Longicornia	34	33	32	59
Phytophaga	142	173	185	256
Heteromera	68	57	69	118
Rhynchophora	264	293	318	526
TOTAL	1,649	1,803	1,900	3,268

SULPHATE OF LIME IN ESSEX SOILS AND SUBSOILS.

By T. S. DYMOND, F.I.C.

[*Read January 28th*, 1905]

IN his last Presidential address to the Essex Field Club, Mr. F. W. Rudler traced the existence of Selenite in certain clay strata to the oxidation of Pyrites in the London-clay, and the reaction of the resulting sulphuric acid with carbonate of lime, by which sulphate of lime is formed. The sulphate of lime crystallizes slowly from solution at the ordinary temperature in the form of selenite. I wish to suggest in this note that there is another possible source for the selenite, and at the same time briefly to discuss the practical bearing of the question upon Essex agriculture.

The selenite crystals appear to be most abundantly found in certain superficial clay strata overlying the London-clay. In sinking shallow wells at Upminster and other places in South Essex, deposits of clay loaded with selenite are sometimes met with.[1] The crystals are found in star like masses, each ray of which consists of characteristic twin crystals superimposed on each other. In the same part of the County, a dry bank under a thick hedge is often found to be encrusted with a white efflorescence of sulphate of lime, pointing to its abundance in the surface soil; if a drying wind occurs after rain, the surface of an arable field will appear white for the same reason, and the farmer finds the soil "capped" and hard. The water obtained from wells sunk into gravelly pockets of the London-clay is often excessively hard, the hardness being partly due to sulphate of lime. In one such water from Wickford I found the permanent hardness was equal to 93 parts of sulphate of lime per 100,000, and another from Ingrave to 112 parts. In such waters, however, part of the hardness is invariably due to sulphate of magnesia.

That such excessive quantities of sulphate of lime are not found associated with the Boulder-clay is sufficiently explained by its permeability to water. The rain water draining through the Boulder-clay dissolves from the surface and carries with it the sulphate of lime, and the water issuing from springs at the outcrop of the underlying gravel, contains appreciable, but not excessive, quantities of the salt. Through the London-clay water cannot easily percolate, and percolation is rather upwards

1 Similar deposits were struck in cutting the new Woodford and Ilford railway.

through the superficial layers in order to replace water evaporated from the surface soil. When this occurs the sulphate of lime is left behind, either as an efflorescence on the surface or, it seems possible, as crystals of selenite in the subsoil.

In considering the source of the sulphate of lime in shallow wells and superficial strata of the London-clay, it will be necessary to enquire to what extent sulphate of lime exists in the surface soils of Essex. In conjunction with my former colleague, Mr. Frank Hughes, now of the Khedivial Agricultural Society of Egypt, I analyzed for sulphate some twenty Essex soils. The results of these analyses are expressed as sulphuric acid (SO_3) per cent.; one per cent. of sulphuric acid is equal to 1·7 per cent. of sulphate of lime.

Locality.	*Sulphuric Acid.*	*Locality.*	*Sulphuric Acid.*
Bromley	·062	Orsett	·050
Bulphan	·030	Great Oakley ..	·048
Burnham	·080	Ramsden	·080
Cressing	·028	Saffron Walden (1)	·093
Dunton	·028	Saffron Walden (2)	·079
Elmstead	·043	St. Osyth	·043
Gosfield	·060	Tendring .. (1)	·035
Margaretting ..	·056	Tendring .. (2)	·050
Mucking	·029	Thaxted .. (1)	·040
North Ockendon ..	·039	Thaxted .. (2)	·045
Average	·051.		

Taking the top 9 inches of soil to weigh 3,000,000 lbs. per acre, the average quantity of sulphate of lime in the surface soil amounts to 2,610 lbs. The drainage through naturally or artificially well-drained land in a year of average rainfall in Essex probably amounts to 150,000 gallons per acre. From analyses of surface drainage waters the sulphate of lime contained in such a quantity of drainage water would amount to nearly 200 lbs., so that in a period of thirteen years the whole of the sulphate of lime would be exhausted.

Sulphate is as necessary an ingredient of plant food as phosphate. Taking the average produce of an Essex farm, an amount of sulphate will be used by crops each year equal to 44 lbs. of sulphate of lime per acre. The question may well be asked whether, in view of the exhaustion by drainage of the sulphate of the soil, Essex soils are not deficient in this ingredient of plant food. A series of field experiments have been carried out by the Essex Education Committee on the subject, but it

has been found that, with the exception of a gross-feeding crop like cabbages, or a crop specially rich in albuminoid like red clover, none of the ordinary crops of the farm responds to sulphate manuring. In spite of loss by drainage therefore a supply of sulphate in the soil, sufficient for most crops, is maintained.

There are two sources of supply of sulphate in the soil. In the first place, Berthellot and André shewed that the total amount of sulphur in the soil was nearly eight times that in the form of sulphate, the greater part being in the form of sulphur compounds produced by the decay of vegetable matter. Mr. Hughes and myself found that these in the presence of certain micro-organisms were converted by atmospheric oxidation into sulphuric acid. In the second place the supply of sulphate is maintained by rain. At Chelmsford the sulphuric acid thus supplied in a year of average rainfall was found to amount to 50 lbs. per acre, *i.e.* more than the average crop could require.

The sulphuric acid, whether produced by fermentation in the soil or supplied by rain, combines with the lime of the soil, producing sulphate of lime. It is owing to this constant exhaustion of the lime of the soil that dressings of lime have to be applied from time to time, and in the absence of such dressings on London-clay soil the land becomes impossible to cultivate. We may suppose that the liming of land has been carried on for centuries. Is it not conceivable that a part of the sulphate of lime that hardens the water, and crystallizes out as selenite in the superficial strata of the London-clay, may be due to the inter-action of sulphuric acid and lime in the surface soil ?

FUNGI IN PAIRS.

By M. C. COOKE, LL.D., M.A., A.L.S., &c.

THE discovery of specimens of *Polyporus nidulans* growing on a tree near Loughton Station, at the last Fungus Foray, has reminded me of several instances in which two species of Fungi, that are closely allied, appear to be good and characteristic species in their extreme forms, but approximate so closely in other instances that it is almost impossible, sometimes, to determine to which of the two species the specimens should be referred. *Polyporus nidulans* (Fr.) has its fellow in *Polyporus rutilans* (Fr.), and the likeness is occasionally so great that some authors have regarded them as varieties of one species.

Amongst Agarics there are undoubtedly *Amanita phalloides* (Fries.) and *Amanita mappa* (Bat.) which may be distinguished from each other in their common forms, but where a large number come together, there will often be found specimens which could not with certainty be referred to either species. Then again there are *Clitopilus orcella* (Bull) and *Clitopilus prunulus* (Scop.), which approach each other so closely in some forms as to justify those mycologists in their doubts, who consider them one species. Nor can we forget such species as *Coprinus comatus* (Fr.) and *Coprinus ovalis* (Sch.), although the *comatus* form is comparatively permanent. Some of the species of *Russula* are distinct enough in their typical forms, but are very puzzling when their characteristics are reduced to the lowest point, and the species seem to coalesce. This is often the case with *Russula citrina* (Gill) and *Russula granulosa* (Cooke) from which *Russula ochroleuca* (Pers.) is chiefly distinguished by the rugose greyish stem. Then again *Russula emetica* (Fries) and the red forms of *Russula fragilis* (Pers) become critical when the flesh of the former does not appear reddish beneath the cuticle. We need not allude to *Hygrophorus lætus* (Fries) and *Hygrophorus houghtoni* (B. and Br.), since no one will now contend against their specific identity. If one might refer to such a genus as *Inocybe*, which seems full of doubts, then *Inocybe pyriodora* (Pers.) and *Inocybe incarnata* (Bres) are occasionally indistinguishable. We can scarcely introduce *Stropharia squamosa* (Fries.) and *Stropharia thrausta* (Kalch) as a case in point, because very few persons regard them as distinct species. It would be easy to multiply instances of this kind, but two species must not be forgotten, if they are really distinct, and these are *Pholiota terrigena* (Fries.) and *Pholiota cookei* (Fries.). Surely if we are right in our determination of the former, the latter is only a slender variety. There are two or three species of *Nolanea*, with a strong fishy odour, such as *Naucoria piceus* (Kalch) and *Nolanea pisciodora* (Ces), often very distinct in appearance, but occasionally very suspiciously alike. These are a few of the "curiosities of mycology," or, we might call them "puzzles for the curious," which will trouble the student, but should not discourage him, but rather stimulate to a further and better knowledge of the secrets of Isis, on whose statues of old was inscribed the legend "I am all that has been, that shall be, and no mortal has lifted the veil that covers me."

THE ESSEX FIELD CLUB—REPORTS OF MEETINGS.

THE 235th ORDINARY MEETING.

Saturday, January 28th, 1905.

This meeting was held as usual in the Technical Institute, Stratford, at 6.30 p.m., the President, Mr. F. W. Rudler, F.G.S., in the chair.

New Member.—Miss Eva Whitley, B.Sc., of 18, Westbourne Terrace, Hyde Park, W., was elected a member of the Club.

Recent Additions to the Museum.—Mr. W. Cole exhibited a specimen of *Putorius hibernicus*, the Irish Stoat, which has been only recently added to the British Fauna. For a long time it was regarded as a large weasel. It is remarkable for not turning white in winter, as the Common Stoat so generally does.

Also fine specimens of the Wild Cat (*Felis catus*) and of *Lepus timidus*, the Mountain Hare.

These specimens had been obtained and set up specially for the museum by Messrs. Sherrin Bros., the Club's taxidermists.

Mr. Cole also showed a specimen of the Grey Shrike (*Lanius excubitor*) employed by the Dutch hawk-catchers to give warning of the approach of a hawk. This specimen had been presented by Mr. J. E. Harting, F.L.S, to be added to his fine collection illustrating the modern practice of Falconry, already in the main hall of the Museum.

Mr. John Spiller, F.I.C., exhibited photographs showing the extraordinary damage to the East Coast of England by weather and sea action during the last few weeks, and made some explanatory remarks on the same.

Papers Read.—Mr. T. S. Dymond, F.C.S., read a paper entitled "Sulphate of Lime in Essex Soils and Sub-Soils." The paper was illustrated by a table showing the proportion of sulphuric acid in soils from 20 separate Essex stations. [*Ante p.* 62.]

The President congratulated Mr. Dymond on his appointment to his new but important post, that of Inspector under the Board of Education, to advise on matters of Education and of Nature-study in Rural Schools, and made some remarks on points in the paper. Mr. Spiller also spoke on the subject.

A vote of thanks was passed to Mr. Dymond for his paper.

Mr. F. J. Chittenden, of the County Technical Laboratories, Chelmsford, then read a paper entitled "The Bog-Mosses (Sphagnaceæ) of Essex: a contribution to a Flora of the County."

Mr. Chittenden's explanations were accompanied by drawings on the blackboard, and by a set of Essex specimens of the group. The paper will be published in the ESSEX NATURALIST in due course.

A discussion on the paper took place, carried on by the President, Mr. Barnard, the Author, and others, and Mr. Chittenden was cordially thanked for a very interesting addition to the County Monographs already issued under the auspices of the Club.

THE 236th ORDINARY MEETING.

Saturday, February 25th, 1905.

The fourth meeting of the winter session was held in the Technical Institute, Stratford, at 6.30 p.m., the President, Mr. F. W. Rudler, I.S.O., F.G.S., in the chair.

Death of Professor Howes.—The President said that the Council had received with great regret the news of the death of Prof. G. B. Howes, LL.D., D.Sc., F.R.S., &c., one of the Honorary Members of the Club. He made some very interesting and appreciative remarks on the life and work of the lamented scientist, and proposed that the meeting should unite with the Council in recording their sense of the loss the Club had sustained, and that a letter of condolence should be sent to Mrs. Howes by the Secretary. This was cordially approved.

New Member.—Mr. Mark Wilks, 24, Lower Clapton Road, N.E., was elected.

Nomination of Officers and New Members of Council.—In view of the annual meeting, nominations of officers and members of Council were made (See report of Annual Meeting on April 8th).

New Cockroach in Essex.—The Secretary exhibited on behalf of Mr. E. C. Horrell, F.L.S., specimens of *Leucophæa surinamensis*, which had occurred in a garden near Chelmsford (See "Notes," E.N. Vol. XIII, p 365).

Injurious Fungi on Hornbeam Trees.—Mr. Robert Paulson exhibited some photographs he had made of twigs of Hornbeam attacked by *Corticium comedens*. This fungus does much harm, and Mr. Paulson made some remarks on the life-history of the pest. He also showed a photograph of the "Witches' Broom" caused by the attacks of *Exoascus carpini* on hornbeams, and of *Stereum hirsutum*, found on old stumps.

Mr. Cole said that the late Miss Ormerod had described the Witches' Broom as being caused by a Mite (*Acarus*), belonging to the Phytopti, in a paper in volume x. (1877) of *The Entomologist* (pp. 83-6), "*Phytoptus* of the Birch-knots." Miss Ormerod traced the development of the infected buds, which grow clustered together, and their abnormal growth in the course of years caused the buds to expand from a small cluster to a great bunch of twigs sometimes as much as a yard in diameter. Mr. Cole said that the matter evidently needed investigation. Of course it was possible that the "Witches' Broom" might be caused in two ways or it might be a case of dual parasitism.

Medallion Portrait of Peter Muilman.—Mr. J. Avery exhibited a medal struck to commemorate the 40th Marriage-day of Peter Muilman, patron of the well-known *History of Essex, By a Gentleman* (1770). It was believed that no other portrait of Muilman was in existence, and the medallion was consequently of very considerable interest.

The several exhibitors were thanked for their communications.

"The Family and Life of Gilberd of Colchester."—Professor Silvanus P. Thompson, D.Sc., F.R.S., &c., then delivered a Lecture on this subject, which was illustrated by the exhibition of rare books, autographs, and by a series of lantern-slides. The Lecturer dwelt principally on the many interesting problems connected with the pedigree of the family and of Gilberd's professional life in London. The lecture was a measure supplemental to Professor Thompson's former lecture which was printed in volume v. of the ESSEX NATURALIST, and it is to be hoped that a full abstract of the Address may be published at some future time.

The Lecturer was most cordially thanked by the President, and Professor Meldola made some remarks upon Gilberd's position in the history of scientific thought, and referred to his high character as probably the first real experimentalist in English science.

The vote of thanks was carried by acclamation, and Professsor Thompson replied.

The Hymenomycetal Fungi of Essex. — The Secretary read an abstract of a paper by Dr. M. C. Cooke, A.L.S., &c., and Mr. George Massee, F.L.S., being a "Revised List of the Hymenomycetal Fungi of Essex ; a contribution to a Flora of the County." The list will appear in the ESSEX NAT., and will be probably reprinted in separate form to serve as a check-list at the Fungus Forays of the Club.

THE 25th ANNUAL GENERAL MEETING AND SPECIAL MEETING.

SATURDAY, APRIL 8TH, 1905.

The 24th Annual Meeting of the Club was held at the Municipal Technical Institute, Stratford, at 4 p.m., Mr. F. W. Rudler, President, in the Chair.

The minutes of the 24th Annual Meeting, held on April 16th, 1904, and printed in the ESSEX NATURALIST, Vol. xiii., pp. 262-3, were read and confirmed.

The Secretary submitted the Annual Report of the Council for the year 1904.

Mr. Rudler said that the Council desired to add to the report a special paragraph referring to Messrs. W. and B. G. Cole and the Misses Cole, and he read the draft of the same, which is appended to the report.

Mr. David Howard, J.P., the Treasurer, submitted his financial statement for the year 1904.

The report and treasurer's statement were unanimously received and adopted.

Both the report and statement are printed in the *Year-book and Calendar for* 1905-6, and this plan will be adopted in the future.

The Secretary presented the account of the Tea Fund for the Session 1904-5. The receipts had been £3 1s. 6d. and the expenditure £5 7s. 6d. (including a balance of £1 15s. 3d. from former session), leaving an adverse balance of £2 6s.

At the Meeting on February 7th last, the following Members retired from the Council by the Rules :—Messrs. ANDREW JOHNSTON, J.P., F. W. READER, PERCY CLARK, and ALFRED LOCKYER. The first two offered themselves for re-election, and were duly nominated. To fill the vacancies, Mr. VICTOR TAYLOR and Mr. J. M. WOOD, C.E. were nominated.

As OFFICERS for 1905, the following were nominated :—

President—Mr. MILLER CHRISTY, F.L.S.

Treasurer—Mr. DAVID HOWARD, J.P., F.C.S., Pres.I.C.

Hon. Secretaries—Mr. W. COLE and Mr. B. G. COLE.

Librarian—Mr. THOMAS W. READER, F.G.S.

Auditors—Mr. WALTER CROUCH, F.Z.S., and Mr. J. D. COOPER.

No other Members having been proposed, the above-named gentlemen stood elected as Members of the Council and Officers for 1905, and were so declared by the Chairman.

The Chairman said that the Council recommended the election of Prof. SILVANUS P. THOMPSON, D.Sc., F.R.S., &c., as one of the Honorary Members, to fill the vacancy occasioned by the lamented death of Prof. G. B. Howes, F.R.S., and the proposal was unanimously adopted by the meeting.

The President intimated that he would reserve his address until the evening meeting, in accordance with the announcement made in the circular.

Mr. Howard said that they ought to express to Mr. Rudler the best thanks of the Members and Council, for the care and high scientific qualities which he had devoted to the Club during his two years of office. (Applause.)

The Rev. W. S. Lach-Szyrma also emphasised the debt they owed to their retiring President, and begged to move a vote of thanks to the several Officers for their work. He considered it a remarkable fact that a local Society should maintain a vigorous life during so long period as 25 years, and still show full power for future work. He thought that they all recognised the excellent efforts of their Officers.

The thanks to the President and Officers were carried amidst applause.

Mr. Christy desired to thank the Club for the honour done to him in choosing him as President. He had been connected with Club ever since its foundation, and felt a most sincere interest in its welfare. He hoped that a strong effort would be made to increase the membership of the Club, and to spread its influence more widely in the County. He would submit some proposals to the Council, with this end in view, during the year.

The meeting was then declared SPECIAL, in order to consider and adopt the Amended Rules. The Secretary had summarised the alterations and additions to the rules in the circular calling the Meeting, and proofs of the Amended Rules were on the table.

On the proposal of the President the Rules were adopted unanimously by the Meeting.

Copies of the Amended Rules have since been sent to all Members of the Club, and the Rules are printed in the *Year-book*, a copy of which will be sent to each Member.

The Meeting then adjourned for tea, to re-assemble in the evening.

THE 237th ORDINARY MEETING.

Saturday, April 8th, 1905.

The Annual Meeting having been held in the afternoon, an Ordinary Meeting was held after tea, at 6.30 o'clock, Mr. F. W. Rudler, V.P., in the chair.

New Member.—Mr. Frank Thompson, Slyder's Gate, Loughton, was elected a Member.

Exhibits.—Mr. W. H. Dalton, F.G.S., exhibited a considerable assortment of fossils and minerals, from various parts of the world, which he had obtained during his recent professional journeys :—

(1) He drew special attention to marl crowded with small *Rissoa*, &c., from the Miocene of Frankport-on-Main, which he had brought for comparison with similar accumulations on the present shores of Essex.

(2 Also a small collection of shells gathered in the course of a few hours delay on the shore of the Okhotsk Sea, on the eastern side of the island of Sakhalin. Their resemblance to, if not specific identity with, our British Myadæ, Tellinidæ, Mactridæ, Buccinidæ, &c., is remarkable, in view, less of the wide difference of longitude between Sakhalin and Essex, than of the difficulties, in respect of temperature, to any interchange of marine forms across either the Polar or the Equatorial seas.

(3) Land and river shells from the northern parts of Lower Burma, with some forms generically similar to those in England, mixed with others of very unfamiliar aspect. The aquatic Gastropoda show the most difference, whilst the *Cyclas*, *Anodon* and *Unio* are much like those of the English rivers.

Some of our entomological members took much interest in a trayful of scorpions, beetles and other "nasty things" (as Mr. Dalton called them) from the Burmese jungles.

It may be mentioned here that on the same part of the Sakhalin shore there was found the skull of a large whale, one of the Ear-bones from which Mr. Dalton has placed with our fossil Ear-bones from the Crag in the Museum for comparison.

Photographs of Essex Coast.—Mr. John Spiller exhibited ten photographs, which had been presented for the Photographic Survey of Essex, by Mr. T. E. Freshwater, F.R.M.S. They were views of Walton-on-the-Naze, Frinton and Clacton, and might become interesting in connection with the rapid changes which are taking place in that part of our coast.

Bifid Earthworm.—Mr. Cole exhibited a very curious specimen of an Earthworm, with a bifid tail, which had been sent to the Museum by Mr. Walter B. Nichols. It had been found by Mr. Nichols' gardener, in his garden at Stour Lodge, Bradfield, Manningtree, Essex. Mr. Cole promised to give details of this curious "freak" after further examination and comparison with the recorded instances of like examples.

Oil-painting of Romford.—Mr. James Holden, Locomotive Superintendent of the Great Eastern Railway, sent for exhibition a large oil-painting of Romford Cattle Market about the middle of the last century. The picture was much admired.

Ordnance Survey Maps in Museum.—Mr. A. E. Briscoe, B.Sc., Principal of the Institute, called attention to the complete set of the 6in. Ordnance Survey Maps of Essex, which had been obtained for use in the Museum, and particularly in connection with the Photographic Survey of Essex. They would be placed in portfolios in a cabinet in the Museum, and he hoped that they would prove valuable and interesting for reference.

Mr. Rudler said that he considered the Club had been very fortunate in obtaining such ready help and co-operation from Mr. Briscoe, and the Education Committee, in the establishment of the very interesting scheme for a photographic survey. (Applause.)

Presidential Address and Thanks to Mr. Rudler.—Mr. Rudler then delivered his Presidential Address, which had been postponed from the Annual Meeting that afternoon. The subject was "Natural History Museums," and it was illustrated by lantern-slides, and by the exhibition of rare books relating to Museums. [The address is printed in *extenso* in the present volume, *ante* pp. 1 to 37.

In the absence of the new President, Mr. Miller Christy, who had left early to catch the train to Chelmsford, Prof. Meldola proposed that a cordial vote of thanks be passed to Mr. Rudler, both for his eminent services during his two years in the Presidential chair, and for the admirable address which he had just delivered. The Club was indebted to Mr. Rudler for an appreciative and personal interest in its affairs which would always linger in the memories of the members, and was a matter for congratulation, that as one of the Permanent

Vice-Presidents they would still have the great benefit of Mr. Rudler's scientific knowledge and experience. The President's appreciation of the efforts the Club was making to establish a local museum was one of the best evidences that could be afforded that these efforts were being pursued on right lines, and Mr. Rudler's address would not only be most valuable in itself, but would be a great aid and encouragement in the future of the Museum.

The vote of thanks was seconded warmly by Mr. T. V. Holmes, and carried by acclamation.

Mr. Rudler replied and thanked Prof. Meldola and Mr. Holmes for their appreciation of his efforts, and the members for the way in which they had endorsed the remarks which had been made.

NOTES—ORIGINAL AND SELECTED.

ZOOLOGY.

BIRDS.

Dotterel at Fowlness.—On Saturday, Sept. 2nd, 1905, a Dotterel (*Eadromias morinellus*), a bird of the year, was shot in Fowlness Island, and by the kindness of Mr. H. Matthams, of Fowlness, it was sent to me for identification and preservation. —HENRY LAVER, Colchester. [Christy (*Birds of Essex*) remarks that the Dotterel is a rare passing migrant in spring and autumn when on its way to or from its more northerly breeding stations among the Scotch mountains.]

How the Wild Birds are returning to the London District.—In the *Daily News* for September 28th, 1905, is a very interesting article on the return of the birds. The writer says :—

For some little time visitors to St. James's Park have enjoyed the beautiful spectacle of a kingfisher flitting about the lake, his brilliant plumage glistening rainbow-like in the sun as he darts after the small fishes in the water. Mr. C. J. Cornish, the well-known writer on wild birds in the Thames Valley, yesterday told a member of our staff that the kingfisher is not the only wild bird that is beginning to make its home in London after long absence.

'The presence of the kingfisher in St. James's Park may be accounted for,' he said, 'by the enormous increase of fish in the ponds there. In spite of the presence of cormorants and pelicans, the water swarms with fish. Roach and dace are fed from the bridge just as the gulls are in winter, and probably there is a large quantity of fry to attract the kingfisher. These birds are very bold when they find nurseries of young fish, and I have known them rob infant trout from the boxes of a hatchery. They have appeared before this on the pond at Battersea Park, and a pair nested two years ago in the grounds of Chiswick House. If the fish supply continues the kingfisher is not likely to desert St. James's Park. London is becoming increasingly attractive to many kinds of

wild birds, especially those that frequent the neighbourhood of water. The universal protection given to them leads them to have no fear of mankind, and the many new lakes and reservoirs, such as the West Middlesex reservoir, near Ranelagh, provide them with their natural hunting and nesting places. The parks, too, afford perfectly safe homes for many birds. For instance, the wood-pigeon—quite a different bird from the tame pigeons of St. Paul's—now abounds in many parks, and is becoming almost domesticated. It is even changing its habits, and now builds on chimneys and roof cornices. Then, to go back to water-birds, on the Serpentine and the ponds in St James's Park, are not only wild ducks and water-hens, but the coot, the pochard, or red-headed diving duck, and the tufted duck, the male of which, by its bright black and white plumage, is very conspicuous. This species is increasing quite as fast in and round London as in the country. It is common on the Serpentine, in St. James's Park, in Wanstead Park, and on the Penn Ponds at Richmond. Three years ago I was invited by the chief engineer of the Middlesex Waterworks to visit the reservoirs at Ranelagh, and there I saw at least seventy tufted ducks which flew about as if on a preserved Norfolk mere. There were also a pair of great crested grebes and many coots. Dabchicks, the smallest of the grebes, breed in St. James's Park, and also at the Penn Ponds and Wanstead. This year there were three broods of small water-hens in the few yards of running water below the Serpentine."

Mr. Cornish added that we could not hope to see all kinds of wild birds returning, such as the insect-feeders—among them all the warblers, the nightingale, the whitethroat, the blackcap, and the chiff-chaff. "There is no suitable food for them in the parks, as there are no bushes, undergrowth, and long grass of the kind which harbours their food. The ground in the shrubberies is dug up, and dug ground is hopeless for them. One of the few places where the small warblers are found is Chiswick Eyot, where this summer the whitethroat, reed warbler, and sedge warbler all nested. It is to be hoped that this eyot, with its fine osiers, will never be built upon. Flocks of peewits come into the market gardens near Chiswick, and have greatly increased since the protecting Act was passed."

FISHES.

Salmon near Southend.—In the *Daily Mail* of June 3rd, 1905, it is noted that a "report has been received by the City of London Piscatorial Society from a member residing at Leigh to the effect that a small salmon has been captured off the Knock Buoy, Southend. The fish, it is stated, was about eighteen inches in length."

Dr. Laver says that salmon are still taken in nets on various parts of the coast, and that few years pass without

the fish being captured in the "Keddles" on the sands of Fowlness.

MOLLUSCA.

Note on Crepidula fornicata in Essex.—In the October part of the *Journal of Conchology* (Vol. II., 227), our correspondent, Mr. J. E. Cooper, makes the following remarks, which may be taken as supplementary to the observations on the shell in the E.N., Vol. x. "*Crepidula fornicata* L., the 'Crow-Oyster,' originally introduced with American oysters, has been found in several of the rivers of Essex for eleven years or more. It would appear that the conditions in the Crouch river are particularly favourable to it, as it is fast becoming a nuisance to the oyster-men at Burnham-on-Crouch. In some parts of this river every pebble and old shell has one or more (generally more) specimens in it. Clusters of five or six, one on the back of the other, are common; one group found this year had no less than nine in this position.[1] Some pebbles carry a cluster on both sides; even the neck of a broken one gave foothold to two inside and three outside. The lowest shell of a group is obliged to adapt its form to the pebble or shell to which it is attached; consequently some curious forms occur. Where the base is an old oyster, the bottom *Crepidula* is remarkably flattened, but whatever the shape of the lowest may be those above it are usually normal in form."

INSECTS.

Gnorimus nobilis in Hainhault Forest.—This very beautiful "Rose-beetle" is decidedly rare in Essex. Mr. Harwood (*Victoria History*) says that single specimens occurred near Colchester in 1899 and 1900, and that a Mr. West took one near Blackwall (!). Mr. Braithwaite noted the capture of a specimen flying in a forest glade near Loughton in 1880 (E.N., xi., 54), and in the E.N., vol. x., p. 411, I recorded one from Lords Bushes, Epping Forest. I then suggested that the larva of the beetle had possibly been introduced with shrubs or plants in a neighbouring garden or plantation, but my brother, B.G.C., has recently happened on a record in *Kidd's Own Journal* for August 14th, 1852, of a specimen or specimens occurring in Hainhault Forest just at the time of the destruction of the

1 I have placed in our Museum a set of eleven specimens so attached, taken *in situ* in the Colne estuary.—W. COLE.

woodlands. This would seem to indicate that the *Gnorimus* was indigenous in the forest in the old days, and that the specimens occasionally still found are natives to and bred in the county. —WILLIAM COLE.

BOTANY.

Euphorbia esula Lim. in Essex.—In the *Flora of Essex* Gibson remarks in a note upon *Euphorbia esula* that the distribution of that plant on the Continent renders it not improbable that it is to be found in Essex, but up to that date (1862) there was no record of its occurrence. Since then Mr. Turner has found it at Witham, where it still grows, as has been announced in the ESSEX NATURALIST. I now have to record two other localities for the plant. Miss Harrison, of Great Saling, during a field meeting of the Braintree Ramblers at Danbury found it near Linguard Common, and a few days afterwards I found it in a disused garden at Broomfield. It may, of course, have been an escape in the latter case, but I do not know that it is ever planted for ornament. It is interesting to note that in neither of the localities in the county does the plant occur in "woods," the habitat generally given in British Floras.—F. J. CHITTENDEN, Biological Laboratory, Chelmsford, September 1st, 1905.

ANTHROPOLOGY.

The Deneholes of Essex.—The *Times* for September 30th, 1905, gave space for a long and very interesting special article under the above title. The writer makes full acknowledgment of the researches of the Essex Field Club as recorded in the first volume of the ESSEX NATURALIST, and fully agrees with the views of Messrs. T. V. Holmes and W. Cole, on the probable object of the pits. He says :—

"It is enough to say that whatsoever may have been the original purpose of these excavations, or the successive uses to which they have been put, no sane man ever made them simply for the purpose of obtaining chalk. . . . . It follows that we are driven back into the spacious field of probability, conjecture, and tradition. The chalk-quarry theory must clearly be discarded. If the elaborate shape and similar design of the chambers were not enough to disprove it, a dozen arguments could be added. Chalk-wells, sunk deep into the chalk, in order to obtain pure chalk, free from 'pipes,' we know; but they are believed to be modern, and the essence of them is that they should be deep in the chalk, whereas these are deeper underground, but not deep in the chalk. Other excavations in the chalk are known, near Brandon, on the borders of Norfolk and Suffolk, at Crayford, Chiselhurst and elsewhere. But they are none of them

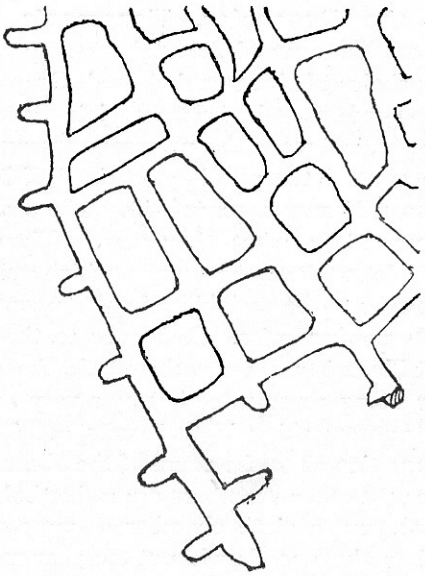
really similar to the Grays holes; those at Brandon were clearly shown to have been made in search of flints; here there are few flints, those that exist appear to have been disregarded, and there are no chippings. In fact, each set of Dene or Dane-holes must be judged by its own surroundings primarily."

The writer discusses the various theories which may be advanced respecting the precise age of the deneholes, and urges the desirability of further investigation to complete the work begun by the Club.

Visit to the Deneholes, Hangman's Wood.— The Croydon Natural History and Scientific Society having decided to visit the deneholes of Hangman's Wood, Grays, on June 4th, 1904, were good enough to invite me to join them. Dr. H. C. Male, the director, had made the necessary arrangements for the descent. We entered the pits by the shaft of No. 4 (Plan of Deneholes, ESSEX NATURALIST, vol. i.). The party appeared to be much interested in what they saw. When in No. 5, an attempt was made to take a photograph, which was unfortunately unsuccessful owing to the variability in the amount of the light afforded by magnesium wire. Reference to the denehole plan will show that No. 2 is a five-chambered pit, the position of the sixth chamber being represented but by a very slight concavity. But when we were working in these pits nothing appeared to give any presumption as to the cause of the absence of the sixth chamber. For the other chambers are rather below than above the average size, and a sixth chamber of more than the usual length might have been made without too near an approach to a neighbouring pit. In June this year, however, the reason for the non-excavation of the sixth chamber was almost certainly revealed by the appearance, in the slight hollow representing it, of an area of a few inches in extent consisting of Thanet Sand, and marking the existence of a "pipe" in the chalk there. These pipes, as every one knows, are extremely varied in shape and in the way they ramify. There is a large one shown in the roof of another part of No. 2, the existence of which no doubt caused the original excavators to desist working at the sixth chamber at the sight of the slightest quantity of sand in the chalk six or seven feet above the floor.—T. V. HOLMES, F.G.S.

The Chislehurst (Kent) Caves.—At the meeting of the the Club on October 29th, 1904, Mr. T. V. Holmes exhibited a

plan of these old workings for chalk. He said that since he made the remarks on these caves at the meeting on April 16th (E.N., vol. xiii., pp. 263-4), he had received the plan shown. An old friend of his, Mr. R. O. Heslop, F.S.A., of Newcastle-on-Tyne, wrote to him asking if he knew anything about these caves, and adding that Mr. T. E. Forster, a well-known mining engineer of that city, was much interested in them.



CHISLEHURST CAVES

Plan of a small group of the more remote galleries, but thoroughly typical of the general system of excavation. Scale 33 feet to one inch.

From T. E. Forster's Plan.

He (Mr. Holmes) sent to Mr. Heslop an account of these caves resembling that given in the ESSEX NATURALIST, which Mr. Heslop forwarded to Mr. Forster. On May 13th, Mr. Forster wrote expressing agreement as regards the modes of construction and the objects of the makers of these Chislehurst Caves, and very kindly forwarding the plan exhibited, which is dated January, 1904. Being the work of a man specially qualified to make an accurate plan of such workings, its testimony is decisive. It clearly shows that whatever may be the apparent

irregularites as regards the size and direction of the galleries, but one general plan of working prevails throughout. One published account of these caves states that the positions of some seventy denehole shafts appear in the ground above them. But the plan shows that any hollows giving that impression must be either surface workings for sand and gravel, or indicate the positions of the downfalls of sand into the chalk beneath. For *in themselves* these hollows furnish no evidence whatever of the existence of denehole shafts, though similar cavities may be found at the surface when deneholes exist. In this case the plan shows no trace of any intersection of deneholes in the workings, a fact decisive against the denehole hypothesis. Judging from the plan, the area occupied by these excavations must be between fifteen and twenty acres. And the point in them most remote from their present entrance is about 300 yards away, if measured in a straight line. It is also noticeable that though the same general plan of working prevails throughout, the galleries within a certain distance of the entrance are on the average higher and broader than those which are more distant. And to the most remote belong the little group here given, to show the general arrangement of the galleries.

These caves were visited by the Geologists' Association on April 26th, 1902, Messrs. T. V. Holmes and C. W. Osman being the directors and reporters of the excursion, an account of which may be seen in *Proc. Geol. Assoc.*, vol. xvii. The reporters look on the caves as workings for chalk. In the *Journal of the British Archæological Association* for December, 1903, there is a paper by Mr. W. J. Nichols, in which they are considered to be deneholes. And in the *Journal of the British Archæological Association* for August, 1904, there is a paper about them by Messrs. T. E. and R. H. Forster, in which the view that they are excavations for obtaining chalk is upheld. It is to this Mr. T. E. Forster that we are indebted for the plan which so decisively settles their affinities.

MISCELLANEA.

An Ancient Municipal Enterprise.—Our esteemed member, Mr. J. C. Shenstone, F.L.S., contributed to the *Saturday Westminster Gazette* of August 12th, 1905, an interesting article under the above title, from which we cull a few paragraphs :—

"It frequently happens that when the full force of some great social

development is first realised it is regarded as a revolutionary movement suddenly sprung upon the world. A search into its history, however, might show that the movement originated in much older times, but that, progress being slow in its earlier stages, it passed unnoticed until, suddenly gaining force, the world became aware of the wide changes involved.

"Most people would regard our modern municipal enterprises as modern innovations, but there is one—the Colchester Oyster Fishery—which, there is every reason to believe, dates back to the time of the ancient Briton. It is quite certain that the "Colchester Native" enjoyed a wide reputation in the days of ancient Rome, and it has even been humorously suggested that Julius Cæsar first visited Britain in order to obtain control of the supplies of this much-appreciated dainty.

"The first existing documentary evidence of this ancient fishery takes us back to the year 1189, when amongst the privileges confirmed to the municipality of Colchester was the right to fish from 'North Bridge to West Ness.' Other documents clearly indicate that this privilege had been enjoyed by the town from a much earlier time, for the Colchester Red Paper Book contains a proclamation made in Colne Waters in 1,256 by the Bailiffs of Colchester which referred to the fishery rights as having been granted by 'many Noble Kings of England from time out of memory.' There is little doubt that the fishery existed in Saxon times, though probably then maintained by tradition and custom. The shells of the Colchester Native have been found in many Roman stations, and even in Rome itself, whilst at Gloucester the shells of the Essex native are said to have been found near to the officers' quarters in the camp, the shells of a common oyster having been found about the quarters of the rank and file. Hence a considerable trade was done in these bivalves in the Roman period of our history, and had not the fishery been under municipal control at that time the fisheries would assuredly have been exhausted.

"There can be no doubt that Colchester was inhabited by an advanced people at the time of the Roman Invasion, and that the fishery was under some kind of control. Oyster-shells have been found amongst the refuse of the earliest British settlements; to find the beginnings of this enterprise we should possibly have to go back to the days of the "painted savage" who figured so large in the histories of our school days.

"The later developments of the Colchester oyster industry can be clearly and completely traced for over seven centuries in the written records of the borough. The first document in which we find the fishery mentioned is the Charter of Richard I., 1189. The fishery rights are confirmed in this and all succeeding charters, but it is to the ancient Court Rolls to which we must turn to learn how the industry grew to its present proportions."

A Stroll in Epping Forest Fifty Years Ago.—This pleasantly written story of a ramble is quoted from *Kidd's Own Journal* for 1853 (vol. iii.). There is reason for identifying the writer with the late Mr. De la Chaumette, of Tottenham. "Bombyx Atlas" was an enthusiastic collector of Continental lepidoptera, and his stories of butterfly-hunting in Switzerland, in the form of the auto-biography of his fine old dog "Fino," are

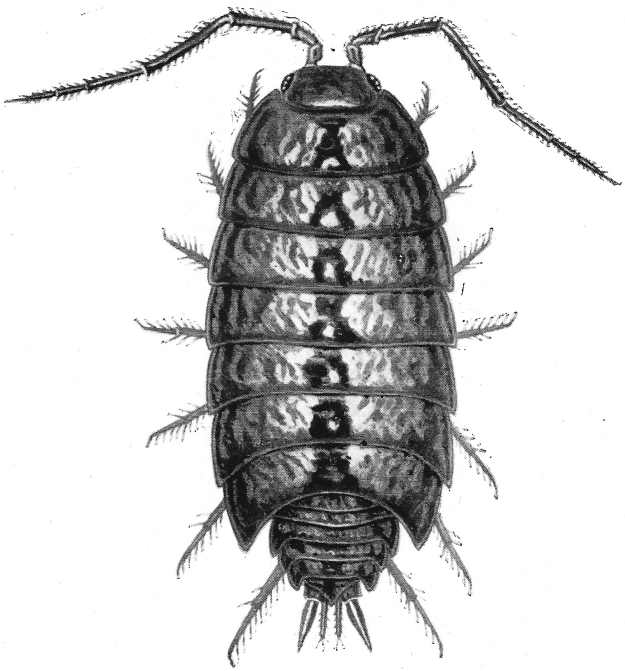
amongst the most racy and amusing narratives of the kind we have ever read :—

"When Old Sol arose on the morning of the 2nd of May, he found myself, my youngest son, and old 'Fino,' enjoying a substantial breakfast; discussing thereat the probable pleasures of a day which we had devoted, in our mind's eye, to a merry ramble. It was agreed that my companion should look after water-beetles, and that whilst he was so engaged, I should secure any other stray beetle or butterfly, &c., &c., that might cross my path—'Fino' keeping order among the rabbits. Well, our various *instruments de chasse* being ready, off we started, about five o'clock a.m. Our route lay direct to the 'Seven Sisters, and thence to the Tottenham Station, which we crossed; and on to the Ferry House. It certainly was a glorious morning, although there was a cool easterly wind stirring, and we did not regret having put in practice an idea (which we at one moment entertained) of going *sans veste*. Passing forwards, we reached Walthamstow, and here the beams of the sun began to be felt. This refreshed us, and thus accompanied, a most lovely walk we had. Onward still further, and we came to the Woodford Road, which runs through part of the Forest. Here it was decidedly warm. Turning to our left, we followed up the road, meeting now and then a brood of pretty little goslings, which seemed much to interest 'Fino,' but the old fellow was desperately alarmed when the fond mother flew at him, with outstretched neck and wings, hissing close to his very nose. He took all this, however, as he generally does everything else, very good-temperedly, and after a time, made tolerable friends with Mrs. Goose and her happy family. He was not so successful, however, with an old hen further on. *She* would listen to no accommodation, and to avoid a row, 'Fino' made a bolt of it. In good time we reached the turnpike, and in a few minutes more the 'Bald Face Stag' (an old acquaintance of ours). We can indeed recollect the said 'Bald Face' for some *few* years! Here we were ushered into a room we knew full well; and looking at our watch, found it half-past seven o'clock. We rested near a good fire, just half an hour—*pour rafraichir la memoire*—and having requested dinner to be ready at half-past two, we started again, neither knowing nor caring which way we went, so long as we kept within scent of the 'Bald Face Stag.' We now struck off to the left, and 'Fino' soon spied some rabbits. Literally mad with delight, nothing could stop him—off he went like a greyhound. But it was all of no use, the little rabbits only laughed at him, and this made him still more mad. We rambled for some time, just where fancy or 'Fino' led—now in a swamp or a bog, now fishing in little ponds, searching under stones or the bark of trees, &c., &c., until our hearts were gladdened by the sound of 'Cuckoo, Cuckoo!' the first time we had heard it this year. It was just eleven o'clock. Suddenly, a peculiar bark was heard from old 'Fino,' and looking round, we saw his tail wagging at an unusually brisk rate. On nearing the spot we found him contemplating a snake some four feet long. At our approach it slipped into its hole, and then, good-bye! After this we broke into a singular field or rather opening in the forest, where an aged bird-catcher was plying his vocation. 'Good morning, old gentleman!'—'Good morning, sirs!' and we soon entered into a familiar chat with our ornithological acquaintance. More than three-score years and ten had evidently passed over his grey head, whilst his manners and language betokened him to be a man who had seen better days. Not that he was to be pitied! By no means! Yet did he seem a man of gentler birth than bird-catchers generally are. We learned from him that his early life had been spent near Liverpool, and

that he had always loved birds, and knew full well their different songs —but that he now took them, more by way of amusement and recreation than from necessity. Also, that both himself and his wife had got a tolerable independence. I asked him if he had heard the nightingale this season, and he told me, 'Yes, on the 21st April, for the first time.' We now parted from our friend, as he said he was going to repose for about two hours before his dinner, as he was *getting* old, and felt rather tired. On looking around, we perceived a stone on which was marked 'Loughton Parish.' We struck again through the forest, retracing our steps. Hereabouts, old 'Fino' made an awkward leap of it. He was after the rabbits and springing over a hedge, without having sufficiently calculated his leap, or looking before he leaped. He leaped, and fell, nose foremost, into a soft bog. He was very wroth, but a pond being near at hand, he soon washed his proboscis and forgot all about it. At length we found ourselves *au point de depart*; and being half-an-hour earlier than the time appointed, we turned down a sweetly pretty lane to the right. Here on a sunny bank, 'Fino' found another kind of sport, in the shape of some little fawn-colored mice, which, however, I could not allow him to hunt or annoy. We again turned back, and reached the 'Bald-Face Stag,' precisely at the hour appointed—very hot, rather tired, very thirsty, and with an *appetit de loup*. We were shown into a snug little room, and 'Fino' soon curled himself round in a corner, dreaming of his glorious sport with the rabbits. Whilst dinner was getting ready, we recollected that we had seen *atalanta*, *rhamni*, *persicariæ*, *tiliæ*, *verbasci*, *menthastri*, *urticæ*, *polychloros*, *bucephala*; that we had taken *rhizolitha*, and obtained some interesting larvæ, and our beetle-bottle contained *Cicindela campestris*, *Scarabæus eremita*, *Aphodius gagates*, and many others, as well as a quantity of water-beetles. After a while, dinner was announced. Just fancy, Mr. Editor, a beautiful knuckle of veal, done to a nicety, some delicious spring pork, tender brocoli, Guinness's best, and Charrington's super-extra, just to relish a capital cheese. Then, an adjournment to a neat little alcove in the garden, where we enjoyed a fine Havannah, and some brilliant sherry; old 'Fino,' in the meanwhile, snoring at our feet, having first disposed of the residue of the veal and pork. Jolly were we all—and merry. At a quarter past four o'clock we started on our return home, arriving at a quarter past seven. An early supper and a sound sleep, saw us next morning in tip-top spirits.—BOMBYX ATLAS, *Tottenham*, May 13th, 1853."

Rustic Criticism of Geologic Theory.—Sir Archibald Geikie tells the story in his *Scottish Reminiscences*, recently published. "I was quite sure you had been in our neighbourhood," a friend said to him :—

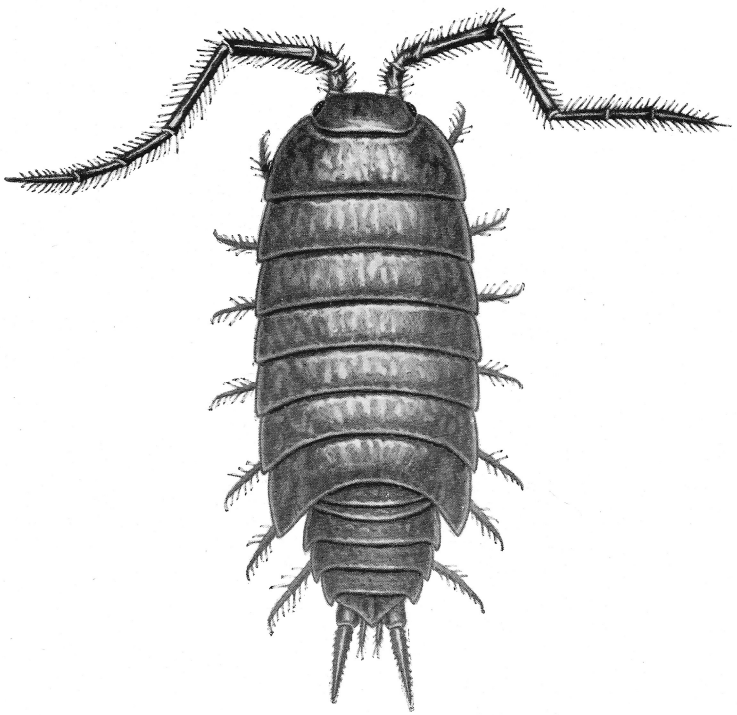
"'I met the old farmer of G——,' who had a strange tale to tell me. 'Dod! Mr. Caithcart,' he began, 'I ran across the queerest body the ither day. As I was comin' by the head o' the cleugh I thocht I heard a wheen tinkers quarrelin', but when I lookit doon there was jist ae wee stoot man. Whiles he was chappin' the rocks wi' a hammer; whiles he was writin' in a book, whiles fechtin' wi' the thorns, and miscair' them for a' that was bad. When he cam' up frae the burn, him and me had a long confab. Dod! he tell't me a' aboot the stanes, and hoo they showed that Scotland was ance like Greenland, smoored in ice. A vary enterteenin' body, Mr. Caithcart, but—an awful awfu' leear.'"



PHILOSCIA MUSCORUM Scopoli.

Length, nine millimetres.

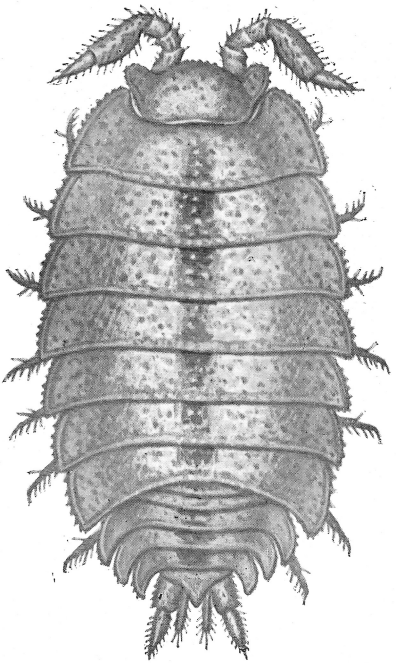
Charles Sillem, del. ad nat. F. W. Reader, sculpt.



PHILOSCIA COUCHII Kinahan.

Length, nine millimetres.

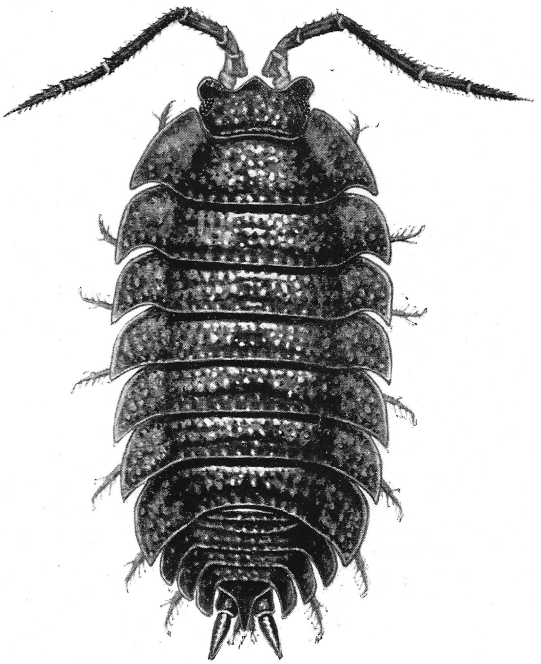
Charles Sillem, del. ad nat. F. W. Reader, sculpt.



PLATYARTHRUS HOFFMANNSEGGII Brandt.

Length, three millimetres.

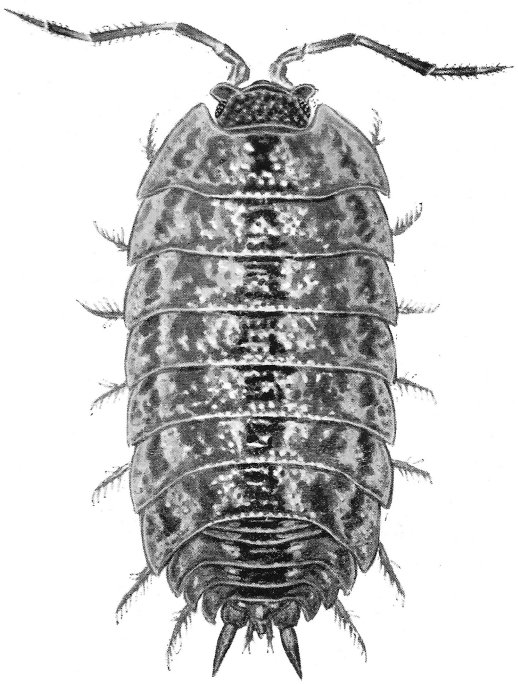
Charles Sillem, del. ad nat. F. W. Reader, sculpt.



PORCELLIO SCABER Latreille.

Length, fourteen millimetres.

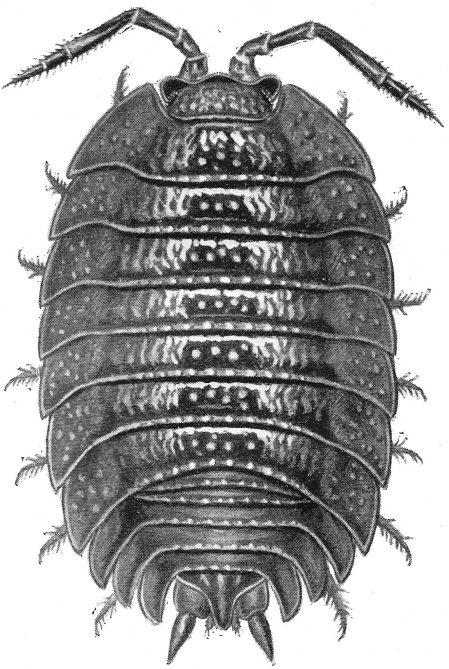
Charles Sillem del. ad nat. F. W Reader, sculpt.



PORCELLIO PICTUS Brandt and Ratzburg.

Length, thirteen millimetres.

Charles Sillem, del. ad nat. F. W. Reader, sculpt.



PORCELLIO DILATATUS Brandt.

Length, fifteen millimetres.

Charles Sillem del. ad nat. F. W. Reader, sculpt.

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